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THE DRAGON SOARS
IN PRAISE OF 35 YEARS OF CHINESE SPACE FLIGHT
(FEATURE ARTICLE)

by

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(Cover)

THE DRAGON SOARS
IN PRAISE OF 35 YEARS OF CHINESE SPACE FLIGHT
(FEATURE ARTICLE)

Liu Dengrui

Translation of "Long De Teng Fei Zhong Guo Hang Tian 35 Nian Li Zan Te Gao"; Modern Military, December, 1991

A Chinese space flight science and technology exposition was held on 28 November. At the same time, photographs were shown reflecting 35 years of Chinese achievements in space flight--<<The Dragon Soars>>. This issue carries the commentary associated with these photographs in order to treat the readers.

As far as China is concerned, we use the dragon as our national symbol, and we have had a brilliant and magnificent ancient civilization. Our ancestors discovered gunpowder and manufactured rockets. They pursued the sun to boast to their fathers. Changwo flew to the moon on the wings of fantasy. However, it is only today that we--the home of the rocket--are finally realizing the flight of the dragon.

Chinese space flight has already gone through a 35 year career. This has been a brilliant and attention grabbing 35 years--an inspiring 35 years. The children of space flight are imbued with lofty sentiments and aspirations associated with the vigorous development of China and have walked a path associated with developing space flight enterprises with our own features and appropriate to China's national conditions.

Up to now, we have already successfully developed and, in conjunction with that, put into service the "Long March" series of carrier rockets possessing capabilities to launch satellites into near earth orbit, solar synchronous orbits, and geostationary orbits.

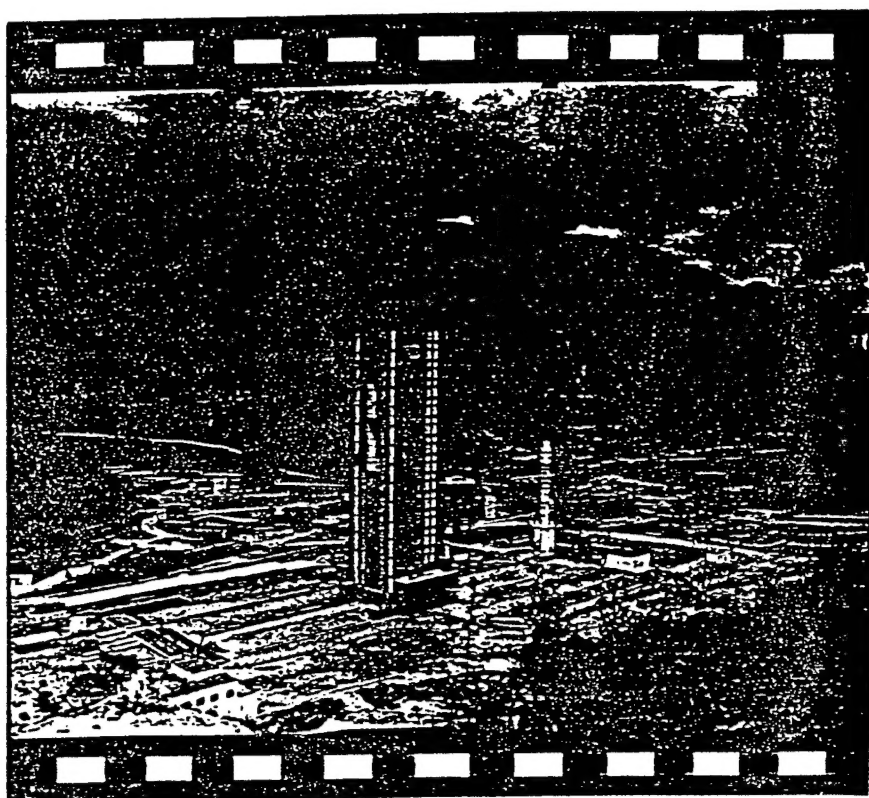
Development and launch has already been done of satellites for scientific experiments, space telemetry, communications broadcasting, metrology, and other such different uses. The vastness of space has 30 Chinese made satellites riding in space on their travels.

We have already constructed three satellite launching centers--Jiuquan, Xichang, and Taiyuan. A surface telemetry and control network composed of various ground stations within China as well as oceanic tracking and survey ships constitutes a comprehensive launch, survey, tracking, and control system.

We have already cultivated and educated a space flight engineering development contingent, accumulating comparatively rich scientific management experience and cultivating precious traditional spirit.

Going through 35 years of arduous struggle, the Chinese people

have stood up in the field of world space flight high technology.



Xichang Satellite Launch Center (Photo Zhi Zheng)

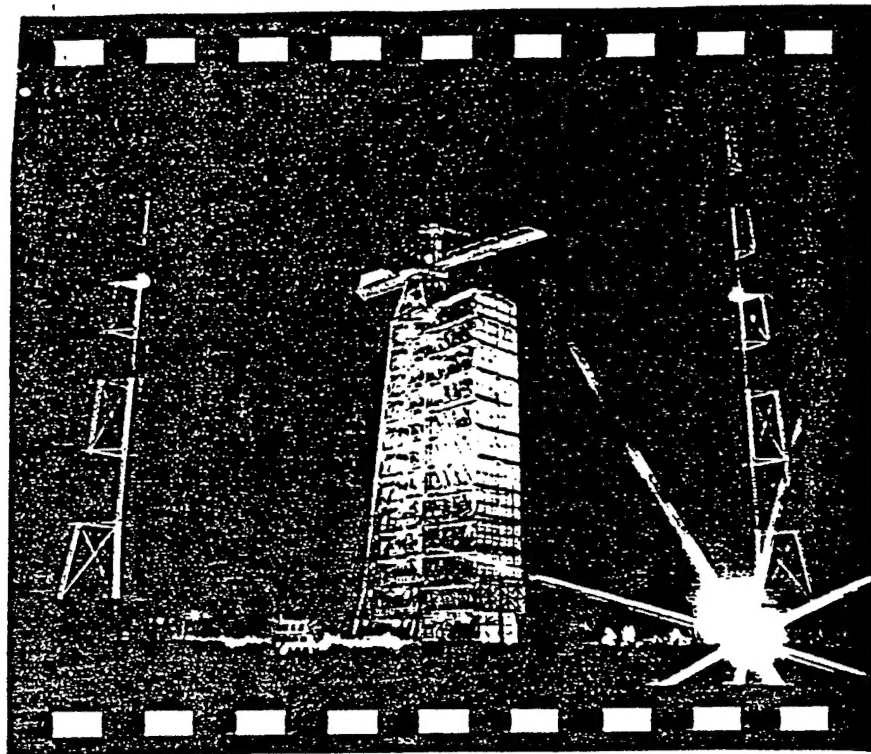
In the middle 1950's, in order to vigorously develop the people and the strength and prosperity of the country, the New China rocket research organization was born. Scientific and technical personnel, workers, and cadre who were devoted to space flight activities piece meal were employed in space flight enterprises. They were resolute and obstinate in their aggressive advance, beginning the climb toward the high peak of modern science and technology.

Famous rocket expert, Dr. Qian Xuesen, returned to China from the U.S. and, not long afterward, was deeply into scientific experimentation on site, enthusiastically guiding rocket development work.

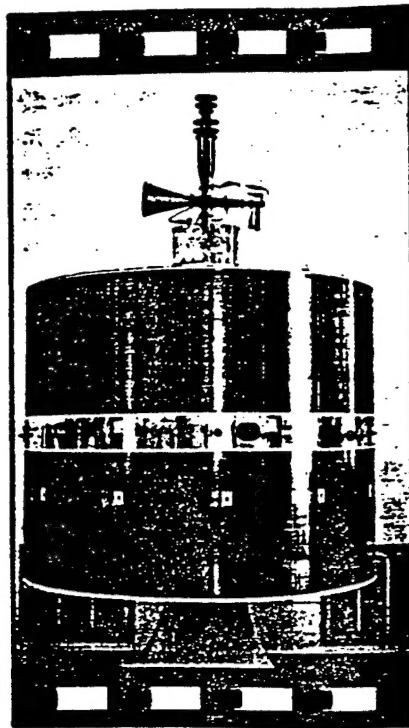
Expert professors were selected from various places throughout the country and transferee to rocket development departments, leading a young generation of scientific and technical personnel. In the various individual realms of rocket research, concerted efforts were made and knowledge concentrated in attacking key problems.

Groups of students graduated from various large and medium technical institutes and schools trampled each other in a disorderly entrance into the gates of rocket development organizations--cherishing ambitions, holding lofty and far reaching intentions, with their feet on the ground and building a road to the stars.

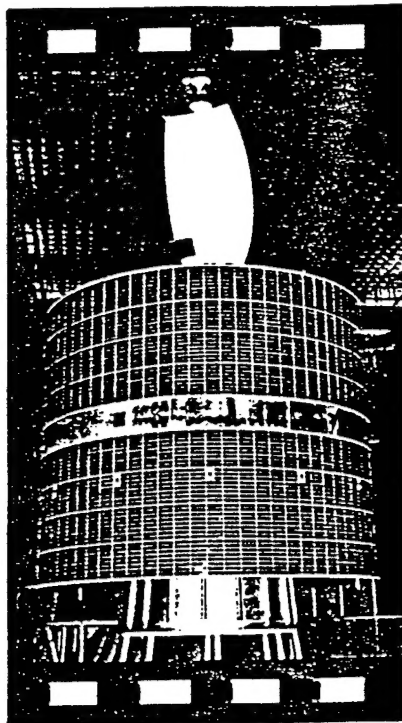
In production workshops, on construction sites, in test stations, in scientific research buildings, numerous scientific and technical personnel and workers, fearless of difficulties, obstinately struggle together on the journey to overcoming rocket technology--realizing breakthroughs one after the other. /2



Night View of Taiyuan Satellite Launch Center



"Dong Fang Hong-1" Experimental Communications Satellite



"Dong Fang Hong-2" Operational Communications Satellite

On 5 November 1960, the first rocket that China replicated was launched in flight skyward from the eastern horizon.

On 29 June 1964, the first rocket that China autonomously designed and developed was thoroughly successful in launch tests.

On 15 July 1966, a biological rocket carrying two small dogs completed ascent and survey flight.

In the 1960's, the development of China's modern rocket technology laid the foundation for flying aloft from the eastern horizon.

"We must also make artificial satellites!" China's children aimed at the new target, starting to part the heavy curtain to space.

In 1965, China's first artificial satellite engineering design began to be implemented. Going through 5 years of arduous effort, the "Dong Fang Hong-1" satellite and the Long March-1 carrier rocket completed development. Both satellite and rocket were ready. The entire assembly awaited launch.

On 24 April 1970, there was a roar that shook the mountains and moved the earth. At the Jiuquan satellite launch center in the Gobi desert, the rocket slowly ascended, carrying aloft the satellite into space and entering into the predetermined orbit of operation.

The music of "The East Is Red", which the satellite broadcast, ringing deep into the mountains and rivers of China and various places in the world, opened up a new era in Chinese space flight.

Not only is it necessary to take satellites and send them into space. It is also necessary to make them return peacefully to the surface. This is the new task of space flight technology. The "Long March-2" carrier rocket took on the task of launching returnable type remote sensing satellites.

On 26 November 1975, China's first returnable type remote sensing satellite was launched successfully. Surface telemetry and control systems tracked it precisely and controlled it accurately.

Three days later, the satellite recovery module deployed a parachute, peacefully landing in a field in good shape.

Up to now, China already has had 12 returnable type remote sensing satellites. After completing flight missions, they return in fame and triumph, maintaining a recovery success rate of 100%.

Cruising the skies and looking afar at a thousand rivers, returnable type satellites have brought back large amounts of valuable remote sensing data and observation results. Remote sensing photographs taken by satellites from space play important roles in such areas as general geological surveys, petroleum prospecting, national land projects, the selection of railroad lines, development of agriculture and forestry, environmental monitoring, earthquake prediction, geodetic surveys, and so on.

Satellites are built in space science experimental stations. China makes use of satellites to develop a series of scientific experimental activities.

Following after the launching of the first scientific

experimental satellite on 3 March 1971, on 20 September 1981, use was also made of one carrier rocket to launch 3 space physics survey satellites.

Satellites measured such high altitude physics parameters as atmospheric density, geomagnetic fields, infrared rays and ultraviolet rays, solar X rays, and so on--sending back large amounts of data to the surface.

Mighty maritime flotillas braved the wind and the waves, driving toward the vast Pacific Ocean.

On 18 May 1980, a long range carrier rocket from the northwest frontier of China streaked across the sky, soaring thousands of miles, flying over the continent as well as the seas and ocean, and accurately splashing down in a predetermined area of ocean in the South Pacific.

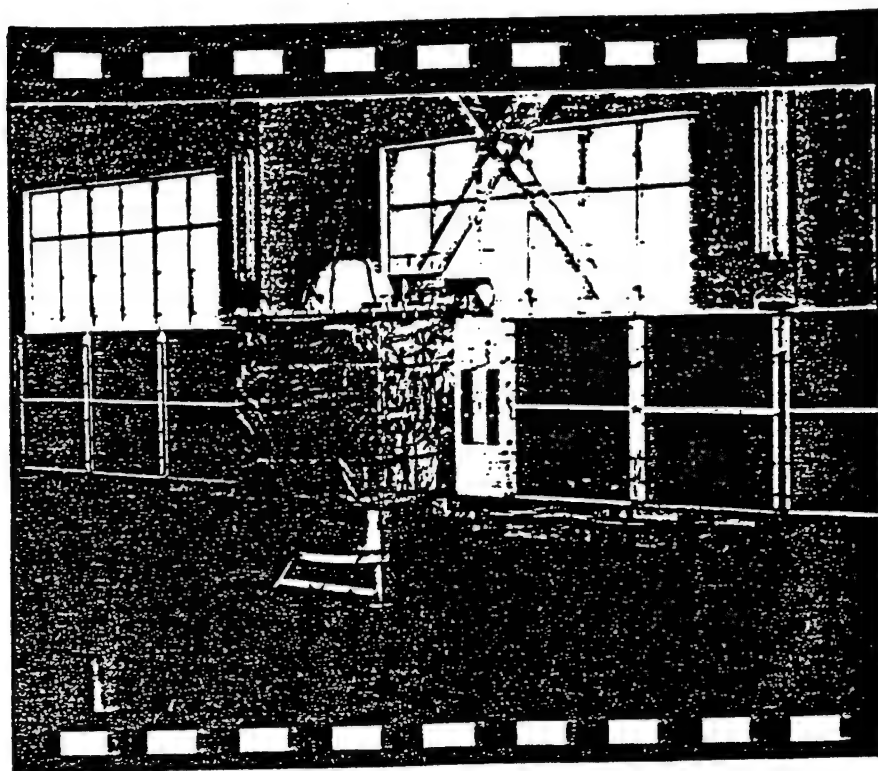
China autonomously designed experimental communications satellites and operational communications satellites. The "Long March-3" carrier rocket sent them into geosynchronous transfer orbits at altitudes of 36 thousand kilometers.

The third stage of "Long March-3" rockets opt for the use of low temperature high energy fuel. Development of hydrogen oxygen engines was successful--taking Chinese rocket technology and raising it to a new level. /3

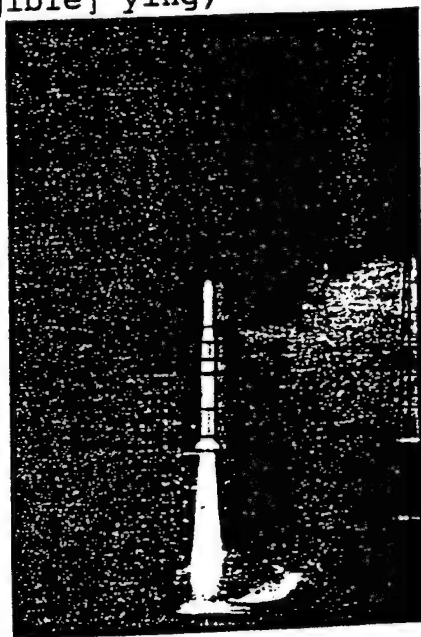
On 8 April 1984, at Qionghaihupan's Xichang satellite launch center, the Dong Fang Hong-2 communications satellite took to the heavens.

The survey ship "Yuanwang", wandering in the Pacific, tracks satellite orbits. Telemetry and control stations built on high mountains in frontier areas acquire satellite whereabouts.

The Xian satellite telemetry and control station accurately controls and gives commands at the appropriate times, making satellites fix at points of predetermined location in space above the equator.



"Feng Yun-1" Experimental Meteorological Satellite (Photo Zhang Liu [Illegible] ying)



"Long March-3" Carrier Rocket that Launched Experimental and Operational Communications Satellites (Photo Wei Wenjun [Illegible])

Up to now, the vastness of space has already seen 5 Chinese communications satellites operate in orbit one after the other. They are like bright lamps hung high in the sky. From Beijing to Hainan, from the Daxingan range to Mt. Qomolongma, from the foot of the celestial mountains to the water's edge of the eastern sea, everywhere in the Divine Land benefits from the culture that comes with satellite communications. Modernized satellite information transmission takes the minds of hundreds of millions of people and links them together.



"Long March-4" Carrier Rocket Takes "Feng Yun-1" Experimental Meteorological Satellite and Sends It into Solar Synchronous Orbit

Chinese satellites constantly open up new realms of application.

At the Taiyuan satellite launch center, "Long March-4" carrier rockets, one after another, took two newly developed "Feng Yun-1" experimental meteorological satellites and sent them into solar synchronous orbit.

Satellites in space chase the stars and pursue the moon, look far and wide over wind and clouds, sending back to the surface clear meteorological cloud maps in order to forecast the weather, monitoring natural disasters, reconnoitering the vegetative ecology, and opening up extensive prospects for the future.

As far as Chinese space flight technology is concerned, in the construction of the national economy, the era of far reaching

applications has already arrived.

The spring wind of reform and opening up blows along the Chinese land. Chinese space flight technology goes beyond the land of the dragon and goes out toward the world.

In July 1985, the Chinese-American U.S. astronaut scientist Dr. Wang Ganjun stepped on the native soil he had been long separated from for many years. He and his assistant, Dr. Li Jiexin, visited China's space flight scientific research test facility. They were infinitely moved emotionally and praised China for blazing her own path--achieving extraordinary accomplishments.

Satellites build a bridge to the heavens. Space passes on the good news. Officials of foreign governments, space flight experts, and company representatives come to China full of enthusiasm, looking around at space flight facilities, exchanging visits, and talking over cooperation.

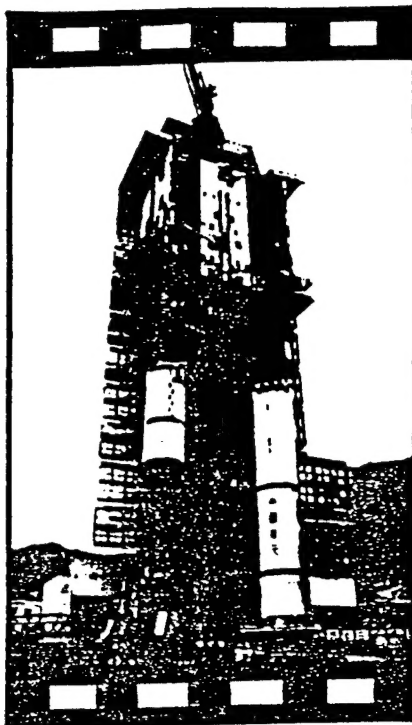
In 1987 and 1988, one after the other, China carried piggy back experimental microgravity apparatus for French and German companies, achieving complete success.

In January 1989, the China Great Wall industrial company signed a satellite launching services contract with the Asia satellite company whose general headquarters is located in Hong Kong. In February 1990, the "Asia-1" communications satellite, built by the U.S., was shipped to the Xichang airfield by Boeing 747 aircraft. As far as high technology commercial activities associated with the use of Chinese carrier rockets to launch foreign satellites are concerned, they have entered into the final phase of implementation.

Chinese space flight staff, side by side with technical personnel from the U.S., the U.K., Canada, and other similar countries, cooperate meticulously and work nervously.

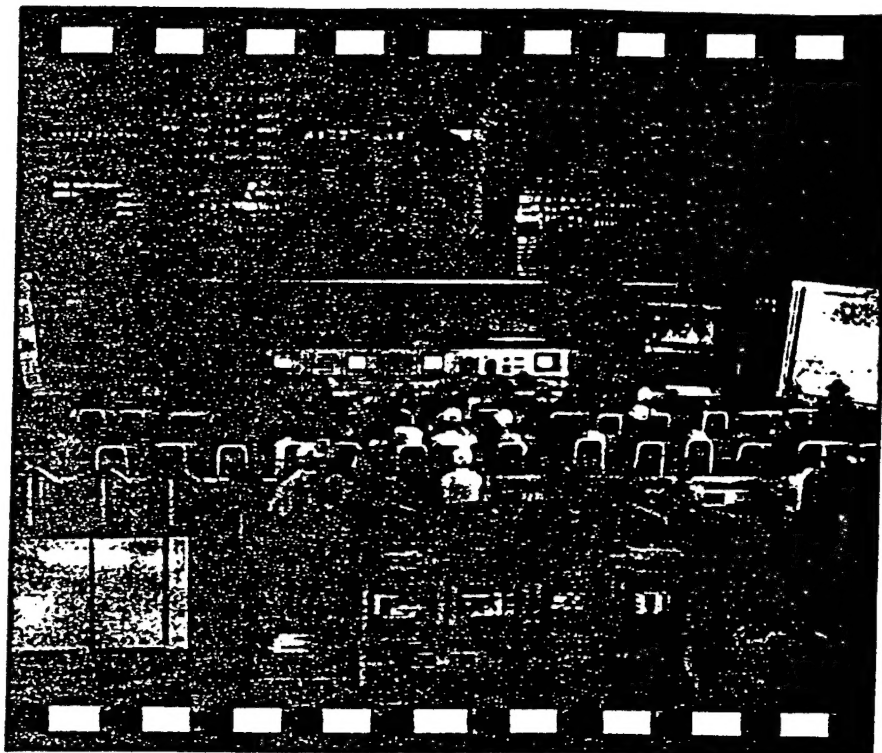
The "Asia-1" satellite is fully loaded and awaiting launch to fly in a twinkling.

Late on 2 April, a "Long March-3" carrier rocket, decorated with the four large characters "China Space Flight", sprayed out blazing flame which shined beautifully and dazzled the eye--taking the "Asia-1" communications satellite and sending it precisely into predetermined orbit.

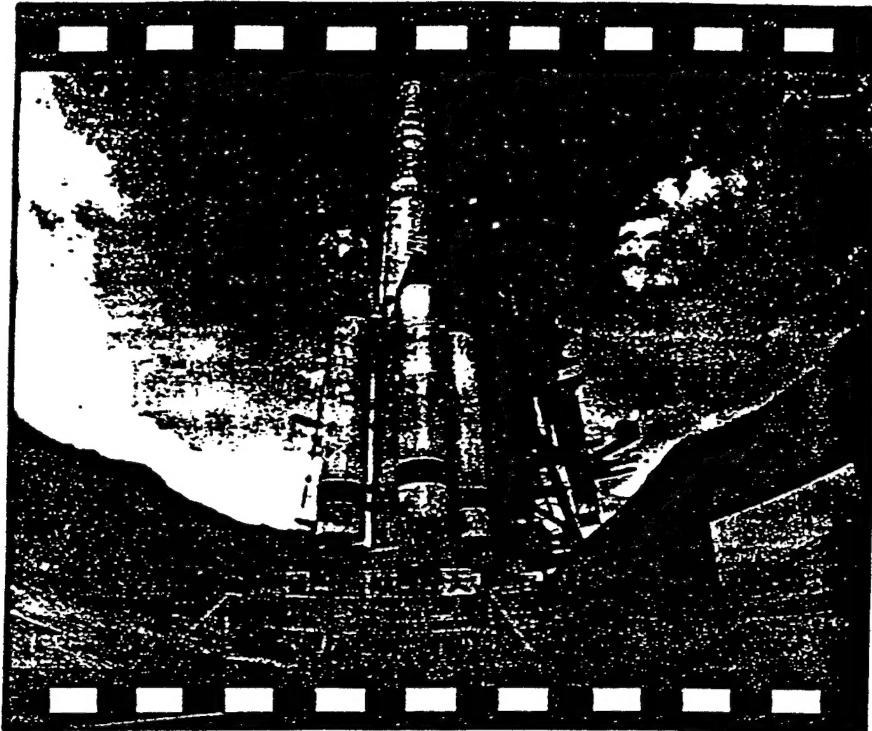


"Long March-3" Carrier Rocket Being Mounted on the Launcher

Over 200 honored guests associated with over 20 countries and regions witnessed this launch, which attracted attention all over the world. Through the "Asia-1" satellite, compatriots in Hongkong and Macao, countrymen in Taiwan, and overseas Chinese are in close touch with China. The Chinese people all over the world felt elation at the flight of the dragon.



Command and Control Center During Launch of the "Asia-1"
Communications Satellite



"Long March-2" Strap On Type Carrier Rocket (Illegible) Stands on the Launcher (Photo Zhi Zheng)

China ought to make comparatively great contributions to the human race. The task of developing the large thrust "Long March-2" strap on type carrier rocket again fell on the China space flight staff. The development period was only 18 months. They wrestled bravely, side by side, cooperating mightily together, winning victory over difficulties, and finishing on schedule.

On 16 July 1990, the "Long March-2" strap on type carrier rocket was launched successfully for the first time. It carried piggy back a Pakistani satellite into a predetermined orbit. As far as this historic launch is concerned, in the history of Chinese space flight, it also set up a new milestone.

Soar, descendants of the dragon!

Mount up, generations of the dragon!

The great dragon of China follows the road through the heavens that was opened up by the ancestors, welcoming the challenge of the 1990's, heading toward the vast depths of cosmic space in order to realize a new flight across the centuries.
(Photo [Illegible])